

## REMARKS

Entry of the foregoing and reexamination and reconsideration of the subject application, as amended, pursuant to and consistent with 37 C.F.R. § 112, are respectfully requested in light of the following remarks.

Claims 31-43, 44-47 and 49-67 are pending in this application. Claims 1-36 and 44 were previously cancelled.

Claims 31, 50, 55, 59, 60 and 61 have been amended to recite the composition produces a foam upon the reaction of the components A and C (claims 31, 50, 59 and 60) or A and B (claims 55 and 61) and does not require the presence of additional compounds to produce the foam. Support for this amendment is found in the specification at least on page 3, lines 1-9.

No new matter has been added in making these amendments.

Applicant gratefully acknowledges the Examiner's withdrawal of the rejections of claims 31, 33, 43, 47, 49, 56 and 65 under 35 U.S.C. §102(b) as being anticipated by McGrath et al. (U.S. Patent No. 3,639,649).

### **35 U.S.C. § 103(a) Obviousness Rejections**

1. Claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 have been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of Morishige et al. (U.S. Patent 5,817,425).

Applicants respectfully submit that Claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 are not obvious over McGrath et al. in view of Morishige et al.

To establish a *prima facie* case of obviousness, three basic criteria must be met. (M.P.E.P § 2143) First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

McGrath et al. relates to methods of producing polyamide foams using a metal carbonate or bicarbonate and an oxyacid of phosphorus. McGrath requires the reaction of the metal carbonate or bicarbonate with the phosphorus oxyacid to produce the foam. (col. 2, lines 1-9) McGrath teaches:

The properties of the foam can be improved by cross-linking the polyamide chains with suitable agents. The cross-linking may be effected by stirring suitable cross-linking agents into the molten polyamide, or by incorporating them during the polymerisation. Cross-linking agents for polyamides are well-known and include bishexamethylenetriamine, trimesic acid, bis-lactams, bis-epoxides and bis-isocyanates. The use of cross-linking agents is particularly advantageous in building up the viscosity of nylon polymers containing high proportions of phosphorus oxy-acids.

(col. 2, lines 48-58)

McGrath teaches the use of bis-isocyanates, which are distinct from polyisocyanates or a compound having at least one isocyanate function protected with a protecting group. The Office Action has ignored this distinction.

The Office Action acknowledges that McGrath does not expressly teach the isocyanate to be a polyisocyanate or that the isocyanate is protected with a protecting group. (page 2)

Morishige discloses a layered polyamide film with an adhesiveness-improving layer provided on at least one surface of the polyamide substrate. The

adhesiveness-improving layer includes a graft copolymer of a polyester and an acrylic polymer. The polyester can be prepared using various methods (col. 4, line 26-col. 6, line 36), some of which prepare the polyester using a polymerizable monomer having an isocyanate group. The adhesiveness-improving layer can be formed by curing the graft copolymer using a cross-linking agent. Numerous cross-linking agents are listed including blocked isocyanate compounds. The teaching in Morishige related to the use of blocked isocyanate compounds is limited to its use as a cross-linking agent for curing a graft polymer between a polyamide substrate and an adhesive layer. Morishige is silent on an expandable foam composition and the formation of a foam composition.

There is no suggestion or motivation in McGrath or Morishige to form the claimed composition that can form a foam without the presence of an additional compound. There cannot have been a reasonable expectation of success in obtaining the Applicant's invention when McGrath teaches a composition that requires using a metal carbonate or bicarbonate and a phosphorus oxyacid to produce the foam and Morishige is silent on foam compositions. Neither McGrath nor Morishige teach or suggest a composition that can form a foam without the presence of an additional compound, as required by the instant claims.

In addition, the Office Action acknowledges that McGrath does not expressly teach the use of a polyisocyanate or that the isocyanate is protected with a protecting group. Morishige teaching of the use of blocked isocyanate compounds is limited to its use as a cross-linking agent for curing a graft polymer between a polyamide substrate and an adhesive layer. There is no suggestion or motivation in McGrath or Morishige to use a blocked isocyanate in a foaming composition. There

is nothing in either of the references that suggests using a curing agent used for forming a graft polymer between a polyamide substrate and an adhesive layer in a foam composition. There cannot have been a reasonable expectation of success in obtaining the Applicant's invention when McGrath is silent on the use of the blocked isocyanate and the teachings of Morishige are unrelated to such compositions. Neither McGrath nor Morishige teach or suggest the use of a blocked isocyanate in the composition of McGrath.

Therefore, in consideration of the foregoing, Applicants respectfully submit that Claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 are not obvious over McGrath et al. in view of Morishige et al.

Applicants therefore request that this rejection be withdrawn.

2. Claims 32 and 34 have been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of in view of Morishige and further in view of Schönfeld et al. (U.S. Patent 5,760,147).

Applicants respectfully submit that Claims 32 and 34 are not obvious over McGrath et al. in view of Schönfeld. Claims 32 and 34 depend from claim 31.

The teachings of McGrath and Morishige were discussed above.

Schönfeld discloses a molding composition comprising: (1) at least one polyamide, and (2) at least one polymer containing sulfoxide groups. Schönfeld discloses that a foam material can be produced by the reaction of the polyamide with a polymer containing sulfoxide groups when the mixture is heated to a temperature of at least 300°C. (col. 2, lines 22-25). Schönfeld does not disclose the use of a

compound having at least one isocyanate function protected with a protecting group and a compound having at least one acid function.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. There is no suggestion or motivation in the cited references to form the claimed composition that can form a foam without the presence of an additional compound. As shown above, McGrath teaches a composition that requires using a metal carbonate or bicarbonate and a phosphorus oxyacid to produce the foam and Morishige is silent on foam compositions. Schönfeld requires a polymer containing sulfoxide groups that can be converted at a temperature of above about 300°C. As such, the teachings of Schönfeld would require the presence of a component outside the scope of the instant claims. There cannot have been a reasonable expectation of success in obtaining the Applicant's invention when McGrath teaches a composition that requires using a metal carbonate or bicarbonate and a phosphorus oxyacid to produce the foam, Morishige is silent on foam compositions and Schönfeld requires a polymer containing sulfoxide groups. Neither McGrath nor Morishige teach or suggest a composition that can form a foam without the presence of an additional compound, as required by the instant claims. Schönfeld does not overcome this deficiency and requires the presence of an additional compound.

Therefore, in consideration of the foregoing, Applicants respectfully submit that Claims 32 and 34 are not obvious over McGrath in view of Morishige and further in view of Schönfeld.

Applicants therefore request that this rejection be withdrawn.

3. Claims 35 and 37 have been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of Morishige et al. (U.S. Patent 5,817,425).and further in view of Glück et al. (U.S. Patent 5,959,069).

Applicants respectfully submit that Claims 35 and 37 are not obvious over McGrath in view of Glück. Claims 35 and 37 depend from claim 31. Claim 31 requires that the composition produces a foam upon the reaction of the components A and C. It was established above that claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 are not obvious over McGrath et al. in view of Morishige et al.

The teachings of McGrath and Morishige were discussed above.

Glück discloses H-shaped polyamides and their use in molded and extruded articles. Glück does not provide any teachings regarding expandable foam compositions or the combination of a polyamide with a compound having an acid function and a compound having at least one isocyanate function protected with a protecting group. There is no mention in Glück of forming a foam composition.

Glück does not provide any motivation to produce the claimed foam forming composition that can form a foam without the presence of an additional compound. Glück cannot provide a reasonable expectation of success in forming the claimed composition when Glück is silent on a foam composition. Glück also does not teach or suggest the claimed foam forming composition that can form a foam without the presence of an additional compound. Therefore Glück does not overcome the deficiencies of McGrath and Morishige.

Therefore, in consideration of the foregoing, Applicants respectfully submit that Claims 35 and 37 are not obvious over McGrath et al. in view of Morishige and further in view of Glück et al.

Applicants therefore request that this rejection be withdrawn.

4. Claims 36 and 37 have been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of Di Silvestro et al. (U.S. Patent 6,867,256).

Applicants respectfully submit that Claims 36 and 37 are not obvious over McGrath et al. in view of Di Silvestro et al. Claims 36 and 37 depend from claim 31, which requires that the composition produces a foam upon the reaction of the components A and C. It was established above that claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 are not obvious over McGrath et al. in view of Morishige et al.

The teachings of McGrath have been discussed above.

Di Silvestro discloses a copolyamide formed by reacting a plurifunctional monomer with at least one bifunctional monomer, where these monomers have specific formulas. Di Silvestro discloses the use of the copolyamides in molded and extruded articles. Di Silvestro is silent on foam compositions and does not provide any teachings regarding an expandable composition or the combination of a polyamide with a compound having an acid function and a compound having at least one isocyanate function protected with a protecting group.

Di Silvestro does not provide any motivation to produce the claimed foam forming composition that can form a foam without the presence of an additional compound. Di Silvestro cannot provide a reasonable expectation of success in

forming the claimed composition when Di Silvestro is silent on a foam composition. Di Silvestro also does not teach or suggest the claimed foam forming composition that can form a foam without the presence of an additional compound. Therefore Di Silvestro does not overcome the deficiencies of McGrath and Morishige.

Therefore, in consideration of the foregoing, Applicants respectfully submit that Claims 36 and 37 are not obvious over McGrath et al. in view of Morishige and further in view of Di Silvestro et al.

Applicants therefore request that this rejection be withdrawn.

5. Claim 38 has been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of Morishige et al. (U.S. Patent 5,817,425) and further in view of Bouquerel et al. (U.S. Patent 6,872,800).

Applicants respectfully submit that Claim 38 is not obvious over McGrath in view of Bouquerel. Claim 38 depends from claim 31. Claim 31 requires that the composition produces a foam upon the reaction of the components A and C. It was established above that claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 are not obvious over McGrath et al. in view of Morishige et al.

The teachings of McGrath and Morishige were discussed above.

Bouquerel discloses hyperbranched copolyamides and their use as melt viscosity modifiers in producing yarns, fibers, films and molded parts. Bouquerel does not provide any teachings regarding an expandable composition or the combination of a polyamide with a compound having an acid function and a compound having at least one isocyanate function protected with a protecting group. There is no mention in Bouquerel of forming a foam composition.



Bouquerel does not provide any motivation to produce the claimed foam forming composition that can form a foam without the presence of an additional compound. Bouquerel cannot provide a reasonable expectation of success in forming the claimed composition when Bouquerel is silent on a foam composition. Bouquerel also does not teach or suggest the claimed foam forming composition that can form a foam without the presence of an additional compound. Therefore Bouquerel does not overcome the deficiencies of McGrath and Morishige.

Therefore, in consideration of the foregoing, Applicants respectfully submit that Claim 38 is not obvious over McGrath in view of Morishige and further in view of Bouquerel.

Applicants therefore request that this rejection be withdrawn.

6. Claims 39 and 42 has been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of Morishige et al. (U.S. Patent 5,817,425).and further in view of Richards et al. (U.S. Patent 4,444,816).

Applicants respectfully submit that Claims 39 and 42 are not obvious over McGrath et al. in view Morishige and further in view of Richards. Claim 39 depends from claim 31 and claim 42 depends from claim 39. Claim 31 requires that the composition produces a foam upon the reaction of the components A and C. It was established above that claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 are not obvious over McGrath et al. in view of Morishige et al.

The teachings of McGrath and Morishige were discussed above.

Richards teaches the cross-linking of polyamides by irradiation in the presence of an unsaturated cross-linking agent, such as triallyl isocyanurate. There is no mention in Richards of forming a foam composition.

Richards does not provide any motivation to produce the claimed foam forming composition that can form a foam without the presence of an additional compound. Richards cannot provide a reasonable expectation of success in forming the claimed composition when Richards is silent on a foam composition. Richards also does not teach or suggest the claimed foam forming composition that can form a foam without the presence of an additional compound. Therefore Richards does not overcome the deficiencies of McGrath and Morishige.

Therefore, in consideration of the foregoing, Applicants respectfully submit that Claims 39 and 42 are not obvious over McGrath in view of Morishige and further in view of Richards.

Applicants therefore request that this rejection be withdrawn.

7. Claims 50-54, 57 and 66 have been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of Morishige et al. (U.S. Patent 5,817,425).

Applicants respectfully submit that Claims 50-54, 57 and 66 are not obvious over McGrath et al. in view of Morishige et al. Claim 50 requires that the composition produces a foam upon the reaction of the components A and C. Claim 50 is not obvious over McGrath and Morishige for the same reasons provided above, which established that claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 are not

obvious over McGrath et al. in view of Morishige et al. Claims 51-54, 57 and 66 depend from claim 50 and therefore are not obvious.

Applicants therefore request that this rejection be withdrawn.

8. Claims 55, 58 and 67 have been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of Morishige et al. (U.S. Patent 5,817,425).

Applicants respectfully submit that Claims 55, 58 and 67 are not obvious over McGrath et al. in view of Morishige et al.

Claim 55 requires that the composition produces a foam upon the reaction of the components A and C. Claim 55 is not obvious over McGrath and Morishige for the same reasons provided above, which established that claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 are not obvious over McGrath et al. in view of Morishige et al. Claims 58 and 67 depend from claim 55 and therefore are not obvious.

Applicants therefore request that this rejection be withdrawn.

9. Claims 59 and 62 have been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of Morishige et al. (U.S. Patent 5,817,425).

Applicants respectfully submit that Claims 59 and 62 are not obvious over McGrath et al. in view of Morishige et al.

Claim 59 requires that the composition produces a foam upon the reaction of the components A and B. Claim 59 is not obvious over McGrath and Morishige for the same reasons provided above, which established that claims 31, 33, 39-41, 43,

45-47, 49, 56 and 65 are not obvious over McGrath et al. in view of Morishige et al.

Claim 62 depends from claim 59 and therefore is not obvious.

Applicants therefore request that this rejection be withdrawn.

10. Claims 60 and 63 have been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of Morishige et al. (U.S. Patent 5,817,425).

Applicants respectfully submit that Claims 60 and 63 are not obvious over McGrath et al. in view of Morishige et al. Claim 60 requires that the composition produces a foam upon the reaction of the components A and C. Claim 60 is not obvious over McGrath and Morishige for the same reasons provided above, which established that claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 are not obvious over McGrath et al. in view of Morishige et al. Claim 63 depends from claim 60 and therefore is not obvious.

Applicants therefore request that this rejection be withdrawn.

11. Claims 61 and 64 have been rejected under 35 U.S.C. § 103(a) as unpatentable over McGrath et al. (U.S. Patent No. 3,639,649) in view of Morishige et al. (U.S. Patent 5,817,425).

Applicants respectfully submit that Claims 61 and 64 are not obvious over McGrath et al. in view of Morishige et al. Claim 61 requires that the composition produces a foam upon the reaction of the components A and B. Claim 61 is not obvious over McGrath and Morishige for the same reasons provided above, which established that claims 31, 33, 39-41, 43, 45-47, 49, 56 and 65 are not obvious over

McGrath et al. in view of Morishige et al. Claim 64 depends from claim 61 and therefore is not obvious.

Applicants therefore request that this rejection be withdrawn.

In view of the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order. Such action is earnestly solicited.

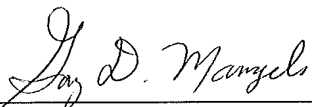
In the event that there are any questions related to this response, or the application in general, it would be appreciated if the Examiner would telephone the undersigned attorney at the below-listed telephone number concerning such questions so that prosecution of this application may be expedited.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: August 4, 2010

By:

  
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